

PATENT ABSTRACTS OF JAPAN

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(54) METHOD FOR PRODUCING NONFRIED NOODLE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method for producing nonfried noodles capable of being reconstituted with hot water in a short time, good in loosening of noodle strips and having texture with smoothness close to that of raw noodles.

SOLUTION: This method for producing nonfried noodles is characterized in that raw noodles or dried noodles are boiled and the boiled noodles are then dipped in water, a seasoning liquid or a modifying liquid at 50-60° C and subsequently dried with cold air under conditions of 0-35° C temperature and 10-60% humidity.

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CLAIMS

[Claim(s)]

[Claim 1] The manufacture approach of the non fly noodles characterized by boiling, being immersed in 5-60-degree C water, seasoning liquid, or reforming liquid, and subsequently carrying out cold blast desiccation of the noodles on the conditions of the temperature of 0-35 degrees C, and 10 - 60% of humidity after boiling fresh noodles or dried noodles.

[Claim 2] The manufacture approach of the non fly noodles according to claim 1 which boil and make ***** (powder weight for a raw material) of noodles 350 - 600% by this ** by immersion processing of noodles.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] About the manufacture approach of non fly noodles, in detail, molten-bath return is possible for this invention in a short time, and it relates to the manufacture approach of the non fly noodles which have smooth mouthfeel near fresh noodles.

[0002]

[Description of the Prior Art] It is almost the case which carried out [what] hot air drying and was used as instant noodles after the conventional non fly noodles generally carried out cooking processing of the fresh-noodles line. However, noodle quality of fresh noodles was [the non fly noodles obtained by doing in this way] far from the mouthfeel list. Then, after once boiling and considering as noodles, the so-called freeze-dry process which washes in cold water and carries out quick-freezing desiccation is proposed. Furthermore, after boiling fresh noodles, how to dry, after being immersed in the cold water around 0 degree C, boiling and cooling noodles till around 3 degrees C, while washing in cold water is also reported (JP,10-136921.A), however, the dried noodles obtained by this approach — the organization of a noodle line — dense — since the cavity inside a noodle line is small — molten-bath return — effective — it cannot carry out — moreover, a noodle line — also getting loose — it is bad and mouthfeel may not fully be satisfied, either. In addition, this is not a fact, although the flavor is indicated that the same desiccation noodles as fresh noodles are obtained, without content starch aging if it was immersed in cold water, it cooled, it boils and noodles are dried.

[0003]

[Problem(s) to be Solved by the Invention] The purpose of this invention is offering the manufacture approach of the non fly noodles which can cancel the fault of the above-mentioned conventional method, can perform molten-bath return in a short time, and moreover have smooth mouthfeel near fresh noodles.

[0004]

[Means for Solving the Problem] Then, the result of having repeated research wholeheartedly this invention person canceling the above-mentioned technical problem. When boiled, and it is immersed in water etc., noodles are boiled, processing contrary to the conventional common sense of making the phenomenon of elongation cause is performed and cold blast desiccation of this thing is carried out, there is no chewiness of noodles and are contrary to prediction that probably only that in which noodle quality deteriorated will be obtained. Since there was no big change in the gluten presentation inside noodles and the surface quality of starch was moderately eluted also by the immersion concerned, also in the next desiccation process, noodle lines adhered, and there is no ** and it found out that the dried noodles which have smooth mouthfeel were obtained. This invention is completed based on this knowledge.

[0005] After it boils fresh noodles or dried noodles, this invention according to claim 1 is boiled, is immersed in 5-60-degree C water, seasoning liquid, or reforming liquid in noodles, and relates to the manufacture approach of the non fly noodles characterized by subsequently carrying out cold blast desiccation on the conditions of the temperature of 0-35 degrees C, and 10 - 80% of humidity. This invention according to claim 2 is boiled, and relates to the manufacture approach of the non fly noodles according to claim 1 which make ***** (powder weight for a raw material) of noodles 350 - 800% by this ** by immersion processing of noodles. Here, it boils, and ***** of noodles is boiled after immersion and means what *(ed) weight of noodles by the weight of raw material powder, and doubled the acquired value 100.

[0006]

[Embodiment of the Invention] Especially the noodles with which this invention is applied are not restricted, for example, can mention a Chinese noodle, Japanese noodles, buckwheat noodles, thin wheat noodles, spaghetti, etc. These can use what made noodles according to the conventional method. In this invention, after boiling [in the case of fresh Chinese-style noodles etc.] these fresh noodles or dried noodles a grade for 3 - 5 minutes all over an ebullition molten bath in a 1 - 2-minute room [about], and desiccation side etc., it obtained and boils and noodles are immersed in water, seasoning liquid, or reforming liquid. Here, seasoning liquid means the water solution which added salt, soy sauce, extractives, etc. to water suitably, and reforming liquid is the purpose which improves the quality of noodles, and it means the water solution which added suitably emulsification fats and oils, alcohol, thickening polysaccharide, etc. in water. In boiling and immersing noodles in these water etc., these noodles are desirably put into a predetermined container, and immersion processing is performed. 7-40 degrees C is preferably suitable for the temperature of the water used at this time, and 5-60 degrees C of water of ordinary temperature (about 15-25 degrees C) should just usually be used for it. The thing which sterilized or processed [sterilization] beforehand should be used for the water used for immersion so that it may boil and a fungus may not propagate to noodles. In addition, it boils, and noodles may be washed in cold water if needed, before being immersed in water etc.

[0007] By this immersion processing, it boils, and by the weight ratio with raw material powder, 350 - 600% of *****, noodles are expanded so that it may become 400 - 550% preferably. In addition, the non fly noodles to which the time

amount which is immersion of about 1 - 2 hours, and molten-bath return takes has good mouthfeel short moreover when water temperature is 15-25 degrees C, for example, although immersion time amount is influenced of water temperature etc. are obtained, even if it extends immersion time amount at this temperature till about 10 hours — mouthfeel of a product — a bad influence is hardly done for getting loose. Moreover, when water temperature is 10 degrees C or less, 2 - 4 hours is suitable for immersion time amount. On the other hand, the good product of quality can be obtained by immersion of 30 minutes - about 1 hour at the time of the elevated temperature of 35-60 degrees C. By boiling and carrying out immersion processing of the noodles, it boils and water permeates to the core of noodles, the moisture inclination in a noodle line becomes a small thing, the volume also increases and organization will also become **** by mediation of water.

[0008] Next, desiccation processing is carried out, after [which expanded] boiling and draining off water from noodles by request. About desiccation conditions, it is [10-25 degrees C and 10 - 60% of humidity] preferably [20 - 50% of] suitable preferably the temperature of 0-35 degrees C. It boils, and cold blast desiccation is a base and, as for desiccation processing of noodles, it is desirable to hold the temperature set up within the above-mentioned condition and humidity. Moreover, in order that noodles may prevent being polluted with saprophytic bacteria, the air in drying room or a dryer should be permuted by the air which sterilized or processed [sterilization]. Although the dried noodles which usually performed desiccation processing so that the moisture content of noodles might become about 8 - 15%, and were excellent in shelf life are obtained, when you do not need a mothball, the drying time is shortened suitably and a moisture content is good also as half-dried noodles to about 25%.

[0009] When cold blast desiccation of the noodle line which is expanding is carried out on condition that the above, since the migration length of the moisture from a core is long, to evaporation of the moisture from a noodle line front face, a difference arises in the progress condition of desiccation by the part of a noodle line, by the core and lateral part of a noodle line, a difference will happen to recrystallization of the quality of starch, and the distortion will form a big crack and a big cavity into a noodle line (refer to drawing 1). Consequently, since the surface area of the noodles to which osmosis of a molten bath touches a molten bath early is increasing when molten-bath return is carried out at the time of eating, the obtained non fly noodles which carried out desiccation processing can carry out molten-bath return for a short time. And since it boils at said immersion process, the quality of starch on the front face of noodles is eluted moderately and the adhesion of noodle lines is controlled, molten-bath return is good and the noodles which have smooth mouthfeel near fresh noodles are obtained. In addition, the crack and cavity which were produced at the time of desiccation disappear by re-formation of a paste of the quality of starch at the time of molten-bath return, moreover, desiccation processing — the moisture content of a noodle line — to some extent (moisture content which is about 15 - 25%) — by — when it reaches, even if it raises drying temperature after that, there is almost no effect on noodle quality.

[0010] On the other hand, if it boils and noodles are dried under the ambient atmosphere of 70% or more of humidity, since [which was immersed like said approach and acquired] the moisture vapor rate from a noodle line will become slow, desiccation becomes slow, recrystallization of the quality of starch is delay-ized and the noodle line of a dense condition with few cracks and cavities is manufactured. Such a noodle line becomes that to which delay and a flavor were inferior in osmosis of the molten bath at the time of molten-bath return with the natural thing on the occasion of eating.

[0011] On the other hand, if it dries under an elevated temperature 40 degrees C or more, desiccation is performed quickly, and a noodle line becomes thin and will be in a dense condition with few cracks and cavities. This noodle line also has slow osmosis of the molten bath at the time of molten-bath return, and it becomes that in which the flavor was inferior. Furthermore, when boiling and not performing immersion processing after raising, it is thin, distortion cannot take place easily at the time of desiccation, and a crack cannot generate a noodle line easily in the surface section. Moreover, a cavity serves as a small noodle line, osmosis of the molten bath at the time of molten-bath return is suppressed, and hard mouthfeel [BOKIBOKI / mouthfeel] is given, and noodle lines — also getting loose — it is inferior.

[0012]

[Example] This invention is not restricted by these although an example explains this invention in detail below.

After having made 4kg of example 1 semi- strong flour into the 100 weight sections, mixing the salt 1 weight section, the **** cone powder 1 weight section, and the water 37 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 22, and the fresh-noodles line was obtained. Subsequently, after having boiled this for 30 seconds per minute [about] all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 500% (powder weight for a raw material) of *****. After an appropriate time, it drained off water, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. The container into which 60g of this product was put was filled with boiling water (98 degrees C) 450mL, and it covered, and after 4 minutes, the noodle line got loose, it evaluated about condition, molten-bath return, and mouthfeel, and comprehensive evaluation was performed further. In addition, ten panelists with abundant experience performed these evaluations in the following four steps, and the average was calculated. A result is shown in the 1st table.

O : — very good O : — good ** : — bad x : — [0013] [very bad] Cold blast desiccation was performed for the immersion noodles of 500% of ***** (powder weight for a raw material) obtained by the same approach as example of comparison 1 example 1 after the ridge within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 70% of humidity, and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this product. A result is shown in the 1st table.

[0014] the immersion noodles of 500% of ***** (powder weight for a raw material) obtained by the same approach as example of comparison 2 example 1 — the inside of the air conditioned room (product made from the Hitachi HVAC system) of after a ridge, the temperature of 50 degrees C, and 40% of humidity — constant temperature — it dried and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this

product. A result is shown in the 1st table.

[0015] After having boiled the fresh-noodles line obtained by the same approach as example of comparison 3 example 1 for 30 seconds per minute [about] and washing it in cold water all over an ebullition molten bath, it drained off water immediately, without performing immersion, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this product. A result is shown in the 1st table.

[0016] After having made 2.8kg of example 2 strong flour, and 1.2kg of buckwheat flour into the 100 in all weight section, mixing the salt 1.0 weight section, the crest potato powder 2.0 weight section, and the water 32 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 22, and the fresh-noodles line was obtained. Subsequently, after having boiled this for about 2 minutes all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 480% (powder weight for a raw material) of *****. After an appropriate time, it boiled, and drained off water from noodles, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0017] After having made 4kg of example 3 medium flour into the 100 weight sections, mixing the salt 6 weight section and the water 42 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 10, and the fresh-noodles line was obtained. Subsequently, after having boiled this for about 3 minutes all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 510% (powder weight for a raw material) of *****. After an appropriate time, it drained off water, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0018] It held after having boiled spaghetti with an example 4 desiccation noodle's thickness of 1.2mm for about 4 minutes until it was immersed in sterilization tap water and became 460% (powder weight for a raw material) of ***** after washing in cold water immediately. After an appropriate time, it drained off water from this spaghetti, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0019]

	湯戻り	食感	細断ほぐれ	総合評価
実施例 1	◎	◎	◎	◎
比較例 1	△	×	○	△
比較例 2	△	×	△	△
比較例 3	△	△	×	△
実施例 2	◎	◎	◎	◎
実施例 3	◎	◎	◎	◎
実施例 4	◎	◎	◎	◎

[Table 1] ** 1 Table

[0020]

[Effect of the Invention] According to this invention, the manufacture approach of the non fly noodles of mouthfeel near [molten-bath return is possible in a short time, and ***** of a noodle line is good, and] the fresh noodles which have smoothness is offered.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] About the manufacture approach of non fly noodles, in detail, molten-bath return is possible for this invention in a short time, and it relates to the manufacture approach of the non fly noodles which have smooth mouthfeel near fresh noodles.

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PRIOR ART

[Description of the Prior Art] It is almost the case which carried out [what] hot air drying and was used as instant noodles after the conventional non fly noodles generally carried out cooking processing of the fresh-noodles line. However, noodle quality of fresh noodles was [the non fly noodles obtained by doing in this way] far from the mouthfeel list. Then, after once boiling and considering as noodles, the so-called freeze-dry process which washes in cold water and carries out quick-freezing desiccation is proposed. Furthermore, after boiling fresh noodles, how to dry, after being immersed in the cold water around 0 degree C, boiling and cooling noodles till around 3 degrees C, while washing in cold water is also reported (JP,10-136921A). however, the dried noodles obtained by this approach — the organization of a noodle line — dense — since the cavity inside a noodle line is small — molten-bath return — effective — it cannot carry out — moreover, a noodle line — also getting loose — it is bad and mouthfeel may not fully be satisfied, either. In addition, this is not a fact, although the flavor is indicated that the same desiccation noodles as fresh noodles are obtained, without content starch aging if it was immersed in cold water, it cooled, it boils and noodles are dried.

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EFFECT OF THE INVENTION

[Effect of the Invention] According to this invention, the manufacture approach of the non fly noodles of mouthfeel near [molten-bath return is possible in a short time, and ***** of a noodle line is good, and] the fresh noodles which have smoothness is offered.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] The purpose of this invention is offering the manufacture approach of the non fly noodles which can cancel the fault of the above-mentioned conventional method, can perform molten-bath return in a short time, and moreover have smooth mouthfeel near fresh noodles.

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MEANS

[Means for Solving the Problem] Then, the result of having repeated research wholeheartedly this invention person canceling the above-mentioned technical problem, When boiled, and it is immersed in water etc., noodles are boiled, processing contrary to the conventional common sense of making the phenomenon of elongation cause is performed and cold blast desiccation of this thing is carried out, there is no chewiness of noodles and are contrary to prediction that probably only that in which noodle quality deteriorated will be obtained. Since there was no big change in the gluten presentation inside noodles and the surface quality of starch was moderately aluted also by the immersion concerned, also in the next desiccation process, noodle lines adhered, and there is no ** and it found out that the dried noodles which have smooth mouthfeel were obtained. This invention is completed based on this knowledge.

[0005] After it boils fresh noodles or dried noodles, this invention according to claim 1 is boiled, is immersed in 5-60-degree C water, seasoning liquid, or reforming liquid in noodles, and relates to the manufacture approach of the non fly noodles characterized by subsequently carrying out cold blast desiccation on the conditions of the temperature of 0-35 degrees C, and 10 - 60% of humidity. This invention according to claim 2 is boiled, and relates to the manufacture approach of the non fly noodles according to claim 1 which make ***** (powder weight for a raw material) of noodles 350 - 600% by immersion processing of noodles. Here, it boils, and ***** of noodles is boiled after immersion and means what *(ed) weight of noodles by the weight of raw material powder, and doubled the acquired value 100.

[0006]

[Embodiment of the Invention] Especially the noodles with which this invention is applied are not restricted, for example, can mention a Chinese noodle, Japanese noodles, buckwheat noodles, thin wheat noodles, spaghetti, etc. These can use what made noodles according to the conventional method. In this invention, after boiling [in the case of fresh Chinese-style noodles etc.] these fresh noodles or dried noodles a grade for 3 - 5 minutes all over an ebullition molten bath in a 1 - 2-minute room [about], and desiccation side etc., it obtained and boils and noodles are immersed in water, seasoning liquid, or reforming liquid. Here, seasoning liquid means the water solution which added salt, soy sauce, extractives, etc. to water suitably, and reforming liquid is the purpose which improves the quality of noodles, and it means the water solution which added suitably emulsification fats and oils, alcohol, thickening polysaccharide, etc. in water. In boiling and immersing noodles in these water etc., these noodles are desirably put into a predetermined container, and immersion processing is performed. 7-40 degrees C is preferably suitable for the temperature of the water used at this time, and 5-60 degrees C of water of ordinary temperature (about 15-25 degrees C) should just usually be used for it. The thing which sterilized or processed [sterilization] beforehand should be used for the water used for immersion so that it may boil and a fungus may not propagate to noodles. In addition, it boils, and noodles may be washed in cold water if needed, before being immersed in water etc.

[0007] By this immersion processing, it boils, and by the weight ratio with raw material powder, 350 - 600% of *****, noodles are expanded so that it may become 400 - 550% preferably. In addition, the non fly noodles to which the time amount which is immersion of about 1 - 2 hours, and molten-bath return takes has good mouthfeel short moreover when water temperature is 15-25 degrees C, for example, although immersion time amount is influenced of water temperature etc. are obtained, even if it extends immersion time amount at this temperature till about 10 hours - mouthfeel of a product - a bad influence is hardly done for getting loose. Moreover, when water temperature is 10 degrees C or less, 2 - 4 hours is suitable for immersion time amount. On the other hand, the good product of quality can be obtained by immersion of 30 minutes - about 1 hour at the time of the elevated temperature of 35-60 degrees C. By boiling and carrying out immersion processing of the noodles, it boils and water permeates to the core of noodles, the moisture inclination in a noodle line becomes a small thing, the volume also increases and organization will also become **** by mediation of water.

[0008] Next, desiccation processing is carried out, after [which expanded] boiling and draining off water from noodles by request. About desiccation conditions, it is [10-25 degrees C and 10 - 60% of humidity] preferably [20 - 50% of] suitable preferably the temperature of 0-35 degrees C. It boils, and cold blast desiccation is a base and, as for desiccation processing of noodles, it is desirable to hold the temperature set up within the above-mentioned condition and humidity. Moreover, in order that noodles may prevent being polluted with saprophytic bacteria, the air in drying room or a dryer should be permuted by the air which sterilized or processed [sterilization]. Although the dried noodles which usually performed desiccation processing so that the moisture content of noodles might become about 8 - 15%, and were excellent in shelf life are obtained, when you do not need a mothball, the drying time is shortened suitably and a moisture content is good also as half-dried noodles to about 25%.

[0009] When cold blast desiccation of the noodle line which is expanding is carried out on condition that the above, since the migration length of the moisture from a core is long, to evaporation of the moisture from a noodle line front face, a difference arises in the progress condition of desiccation by the part of a noodle line, by the core and lateral part of a noodle line, a difference will happen to recrystallization of the quality of starch, and the distortion will form a big crack and

a big cavity into a noodle line (refer to drawing 1). Consequently, since the surface area of the noodles to which osmosis of a molten bath touches a molten bath early is increasing when molten-bath return is carried out at the time of eating, the obtained non fly noodles which carried out desiccation processing can carry out molten-bath return for a short time. And since it boils at said immersion process, the quality of starch on the front face of noodles is eluted moderately and the adhesion of noodle lines is controlled, molten-bath return is good and the noodles which have smooth mouthfeel near fresh noodles are obtained. In addition, the crack and cavity which were produced at the time of desiccation disappear by re-formation of a paste of the quality of starch at the time of molten-bath return. moreover, desiccation processing — the moisture content of a noodle line — to some extent (moisture content which is about 15 - 25%) — by — when it reaches, even if it raises drying temperature after that, there is almost no effect on noodle quality.

[0010] On the other hand, if it boils and noodles are dried under the ambient atmosphere of 70% or more of humidity, since [which was immersed like said approach and acquired] the moisture vapor rate from a noodle line will become slow, desiccation becomes slow, recrystallization of the quality of starch is delay-ized and the noodle line of a dense condition with few cracks and cavities is manufactured. Such a noodle line becomes that to which delay and a flavor were inferior in osmosis of the molten bath at the time of molten-bath return with the natural thing on the occasion of eating.

[0011] On the other hand, if it dries under an elevated temperature 40 degrees C or more, desiccation is performed quickly, and a noodle line becomes thin and will be in a dense condition with few cracks and cavities. This noodle line also has slow osmosis of the molten bath at the time of molten-bath return, and it becomes that in which the flavor was inferior. Furthermore, when boiling and not performing immersion processing after raising, it is thin, distortion cannot take place easily at the time of desiccation, and a crack cannot generate a noodle line easily in the surface section. Moreover, a cavity serves as a small noodle line, osmosis of the molten bath at the time of molten-bath return is suppressed, and hard mouthfeel [BOKIBOKI / mouthfeel] is given, and noodle lines — also getting loose — it is inferior.

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EXAMPLE

[Example] This invention is not restricted by these although an example explains this invention in detail below.

After having made 4kg of example 1 semi-strong flour into the 100 weight sections, mixing the salt 1 weight section, the **** cone powder 1 weight section, and the water 37 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 22, and the fresh-noodles line was obtained. Subsequently, after having boiled this for 30 seconds per minute [about] all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 500% (powder weight for a raw material) of *****. After an appropriate time, it drained off water, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. The container into which 60g of this product was put was filled with boiling water (98 degrees C) 450mL, and it covered, and after 4 minutes, the noodle line got loose, it evaluated about condition, molten-bath return, and mouthfeel, and comprehensive evaluation was performed further. In addition, ten panelists with abundant experience performed these evaluations in the following four steps, and the average was calculated. A result is shown in the 1st table.

O : — very good O : — good *: — bad x: — [0013] [very bad] Cold blast desiccation was performed for the immersion noodles of 500% of ***** (powder weight for a raw material) obtained by the same approach as example of comparison 1 example 1 after the ridge within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 70% of humidity, and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this product. A result is shown in the 1st table.

[0014] the immersion noodles of 500% of ***** (powder weight for a raw material) obtained by the same approach as example of comparison 2 example 1 — the inside of the air conditioned room (product made from the Hitachi HVAC system) of after a ridge, the temperature of 50 degrees C, and 40% of humidity — constant temperature — it dried and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this product. A result is shown in the 1st table.

[0015] After having boiled the fresh-noodles line obtained by the same approach as example of comparison 3 example 1 for 30 seconds per minute [about] and washing it in cold water all over an ebullition molten bath, it drained off water immediately, without performing immersion, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. It was similarly estimated as the example 1 about this product. A result is shown in the 1st table.

[0016] After having made 2.8kg of example 2 strong flour, and 1.2kg of buckwheat flour into the 100 in all weight section, mixing the salt 1.0 weight section, the crest potato powder 2.0 weight section, and the water 32 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 22, and the fresh-noodles line was obtained. Subsequently, after having boiled this for about 2 minutes all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 480% (powder weight for a raw material) of *****. After an appropriate time, it boiled, and drained off water from noodles, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0017] After having made 4kg of example 3 medium flour into the 100 weight sections, mixing the salt 6 weight section and the water 42 weight section to this and *(ing) in **, it rolled out and the noodle belt with a thickness of 1.25mm was created. This noodle belt was cut using the cutting edge angle of No. 10, and the fresh-noodles line was obtained. Subsequently, after having boiled this for about 3 minutes all over an ebullition molten bath, it washed in cold water, and it held until it was immediately immersed in sterilization tap water and became 510% (powder weight for a raw material) of *****. After an appropriate time, it drained off water, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0018] It held after having boiled spaghetti with an example 4 desiccation noodle's thickness of 1.2mm for about 4 minutes until it was immersed in sterilization tap water and became 460% (powder weight for a raw material) of *****, after washing in cold water immediately. After an appropriate time, it drained off water from this spaghetti, cold blast desiccation was performed within the air conditioned room (product made from the Hitachi HVAC system) of the temperature of 20 degrees C, and 40% of humidity, and the moisture content manufactured about 11% of non fly noodles. About this product, it was similarly estimated as the example 1. A result is shown in the 1st table.

[0019]

	漲戻り	食感	経験ほぐれ	総合評価
実施例 1	◎	◎	◎	◎
比較例 1	△	×	○	△
比較例 2	△	×	△	△
比較例 3	△	△	×	△
実施例 2	◎	◎	◎	◎
実施例 3	◎	◎	◎	◎
実施例 4	◎	◎	◎	◎

[Table 1] ** 1 Table

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the explanatory view showing the result of having observed the cross section of the noodle line concerning this invention with the electron microscope (x40).

[Translation done.]

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DRAWINGS

[Drawing 1]



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(54) 【発明の名称】 ノンフライ麺の製造方法

(57) 【要約】

【課題】 短時間で湯戻りが可能で、麺線のほぐれが良く、滑らかさを有する生麺に近い食感のノンフライ麺の製造方法を提供すること。

【解決手段】 生麺または乾麺を茹でた後、茹で麺を5～60℃の水、調味液または改質液に浸漬し、次いで温度0～35℃、湿度10～60％の条件で冷風乾燥することを特徴とするノンフライ麺の製造方法。

【特許請求の範囲】

【請求項1】 生麺または乾麺を茹でた後、茹で麺を5〜60℃の水、調味液または改質液に浸漬し、次いで温度0〜35℃、湿度10〜60％の条件で冷風乾燥することを特徴とするノンフライ麺の製造方法。

【請求項2】 茹で麺の浸漬処理により、該茹で麺の増重率（対原料粉重量）を350〜600％とする請求項1記載のノンフライ麺の製造方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、ノンフライ麺の製造方法に関し、詳しくは短時間で湯戻り可能で、生麺に近い滑らかな食感を有するノンフライ麺の製造方法に関する。

【0002】

【従来の技術】従来のノンフライ麺は、一般に、生麺線を蒸気処理した後、熱風乾燥して即席麺としたものが殆どである。しかし、このようにして得られるノンフライ麺は、食感並びに麺質が生麺とは程遠いものであった。そこで、一旦茹で麺とした後、水洗いし急速凍結乾燥する、いわゆるフリーズドライ製法が提案されている。さらに、生麺を茹でた後、水洗いすると共に0℃前後の冷水に浸漬して茹で麺を3℃前後まで冷却してから乾燥する方法も報告されている（特開平10-136921号公報）。しかしながら、この方法で得られた乾燥麺は、麺線の組織が密で、麺線内部の空洞が小さいため、湯戻しが効果的に行えず、また麺線のほぐれも悪く、食感も十分に満足し得るものではない。なお、冷水に浸漬して冷却した茹で麺を乾燥すると、含有でん粉が老化することなく、食味が生麺と同じ乾燥麺類が得られると記載されているが、これは事実ではない。

【0003】

【発明が解決しようとする課題】本発明の目的は、上記した従来法の欠点を解消して、短時間で湯戻りを行うことができ、しかも生麺に近い滑らかな食感を有するノンフライ麺の製造方法を提供することである。

【0004】

【課題を解決するための手段】そこで、本発明者は上記の課題を解消すべく鋭意研究を重ねた結果、茹で麺を水などに浸漬して茹で伸びの現象を起こさせるという従来の常識に反する処理を行い、このものを冷風乾燥したところ、麺のコシが無く、麺質の劣化したものしか得られないであろうという予測に反して、当該浸漬によっても麺内部のグルテン組成に大きな変化がなく、表面のデンプン質が高度に溶出しているため、後の乾燥工程においても、麺線同士のくっつきがなく、滑らかな食感を有する乾燥麺が得られることを見出した。本発明は、かかる知見に基づいて完成したものである。

【0005】請求項1に記載の本発明は、生麺または乾麺を茹でた後、茹で麺を5〜60℃の水、調味液または

改質液に浸漬し、次いで温度0〜35℃、湿度10〜60％の条件で冷風乾燥することと特徴とするノンフライ麺の製造方法に関する。請求項2に記載の本発明は、茹で麺の浸漬処理により、該茹で麺の増重率（対原料粉重量）を350〜600％とする請求項1記載のノンフライ麺の製造方法に関する。ここで、茹で麺の増重率とは、浸漬後の茹で麺の重量を原料粉の重量で除し、得られた値を100倍したものを意味する。

【0006】

10 【発明の実施の形態】本発明が適用される麺類は特に制限されず、例えば中華麺、うどん、そば、そうめん、スパゲッティ等を挙げることができる。これらは、常法にしたがって製麺されたものを使用することができる。本発明では、これらの生麺または乾麺を、例えば生中華麺などの場合は、沸騰湯中で1〜2分間程度、乾燥そばなどの場合は、3〜5分間程度茹でた後、得られた茹で麺を水、調味液または改質液に浸漬する。ここで、調味液とは水に食塩、醤油、エキスを適宜加えた水溶液を意味し、改質液とは麺の品質を改良する目的で、水に乳化油脂、アルコール、増粘多糖類等を適宜添加した水溶液を意味する。茹で麺をこれら水などに浸漬するにあたり、望ましくは該麺を所定の容器に入れて浸漬処理を行う。このとき用いる水などの温度は、5〜60℃、好ましくは7〜40℃が適当であり、通常は常温（15〜25℃程度）の水を使用すればよい。浸漬に用いる水は、茹で麺に菌類が増殖することがないように、あらかじめ殺菌もしくは滅菌処理したものを使用すべきである。なお、茹で麺を水などに浸漬する前に、必要に応じて水洗いしてもよい。

30 【0007】この浸漬処理によって、茹で麺を原料粉との重量比で増重率350〜600％、好ましくは400〜550％となるように膨張させる。なお、浸漬時間は、水温等の影響を受けるが、例えば水温が15〜25℃の場合は、約1〜2時間の浸漬で、湯戻りに要する時間が短く、しかも良好な食感を有するノンフライ麺が得られる。この温度で浸漬時間を10時間程度まで延長しても、製品の食感やほぐれに殆ど悪影響を及ぼさない。また、水温が10℃以下の場合には、浸漬時間は2〜4時間が適当である。一方、35〜60℃という高温のときは、30分〜1時間程度の浸漬で品質の良好な製品を得ることができる。茹で麺を浸漬処理することにより、茹で麺の中心部まで水が浸透し、麺線中の水分勾配は小さなものとなり、体積も増大し、組織構造も水の介在によって粗なものとなる。

40 【0008】次に、膨張した茹で麺を、所望により水切りした後、乾燥処理する。乾燥条件については、温度0〜35℃、好ましくは10〜25℃、湿度10〜60％、好ましくは20〜50％が適当である。茹で麺の乾燥処理は、冷風乾燥が基本であり、上記の条件内で設定した温度や湿度を保持することが望ましい。また、生麺類

が雑菌により汚染されることを防止するため、乾燥室あるいは乾燥機内の空気は殺菌もしくは滅菌処理した空気と置換しておくべきである。乾燥処理は、通常、麺の水分含量が約8～15％となるように行って保存性に優れた乾燥麺を得るが、長期保存を必要としない場合などには、乾燥時間を適宜短縮して水分含量が約25％程度までの半乾燥麺としてもよい。

【0009】膨張している麺線を上記の条件で冷風乾燥すると、麺線表面からの水分の蒸発に対して中心部からの水分の移動距離が長いので、麺線の部位により乾燥の進み具合に差が生じ、麺線の中心部と外側部ではデンプン質の再結晶化に差が起こり、その至みは麺線中に大きな亀裂や空洞を形成することになる(図1参照)。その結果、乾燥処理して得たノンフライ麺は喫食時に湯戻した際、湯の浸透が早く、湯に接する麺の表面積が増大しているため、短時間で湯戻しすることが可能である。しかも、前記浸漬工程で茹で麺表面のデンプン質が適度に溶出し、麺線同士の付着性が抑制されているため、湯戻りが良好で、生麺に近い滑らかな食感を有する麺が得られる。なお、乾燥時に生じた亀裂や空洞は、湯戻し時のデンプン質の再糊化により消滅する。また、乾燥処理によって麺線の水分量がある程度(15～25％程度の水分含量)までに達すると、その後は乾燥温度を上げても麺質への影響は殆どない。

【0010】これに対して、前記方法と同様に浸漬して得た茹で麺を湿度70％以上の雰囲気下で乾燥を行うと、麺線からの水分蒸発速度が遅くなるため、乾燥が緩慢となり、デンプン質の再結晶化は遅延化され、亀裂や空洞の少ない密な状態の麺線が製造される。このような麺線は、当然のことながら、喫食の際に湯戻し時の湯の浸透が遅れ、食味の劣ったものとなる。

【0011】一方、40℃以上の高温下で乾燥を行うと、乾燥は急速に行われ、麺線は細くなり、亀裂や空洞の少ない密な状態となる。この麺線も、湯戻し時の湯の浸透が遅く、食味の劣ったものとなる。さらに、茹で上げ後に浸漬処理を行わない場合は、麺線は細く、乾燥時に芯が硬く、表皮部に亀裂が発生しにくく、また、空洞が小さい麺線となり、湯戻し時の湯の浸透が抑えられ、ボキボキした硬い食感を与える。しかも、麺線同士の増しけも劣っている。

【0012】

【実施例】以下に、本発明を実施例により詳しく説明するが、本発明はこれらによって制限されるものではない。

実施例1

単強力粉4kgを100重量部とし、これに食塩1重量部、かんすい粉末1重量部及び水37重量部を混合し、混ねつたのち、圧延して厚さ1.25mmの麺帯を作成した。この麺帯を、切刃2番角を用いて切断し、生麺線を得た。次いで、これを沸騰湯中で約1分30秒間茹

で上げた後、水洗いし、直ちに滅菌水道水に浸漬して増重率500％(対原料粉重量)になるまで保持した。しかる後、水切りし、温度20℃、湿度40％の恒温恒湿室(日立空調システム製)内で冷風乾燥を行い、水分含量が約11％のノンフライ麺を製造した。この製品60gを入れた容器に蒸湯(98℃)450mlを注いで蓋をし、4分後に麺線のほぐれ具合、湯戻り、食感について評価し、さらに総合評価を行った。なお、これらの評価は、経験豊富なパネラー10名により以下の4段階で行い、平均値を求めた。結果を第1表に示す。

◎：非常に良い、○：良い、△：悪い、×：非常に悪い

【0013】比較例1

実施例1と同様の方法で得た、増重率500％(対原料粉重量)の浸漬麺を、水切り後、温度20℃、湿度70％の恒温恒湿室(日立空調システム製)内で冷風乾燥を行い、水分含量が約11％のノンフライ麺を製造した。この製品について実施例1と同様に評価した。結果を第1表に示す。

【0014】比較例2

実施例1と同様の方法で得た、増重率500％(対原料粉重量)の浸漬麺を、水切り後、温度50℃、湿度40％の恒温恒湿室(日立空調システム製)内で恒温乾燥を行い、水分含量が約11％のノンフライ麺を製造した。この製品について実施例1と同様に評価した。結果を第1表に示す。

【0015】比較例3

実施例1と同様の方法で得た生麺線を、沸騰湯中で約1分30秒間茹で上げ、水洗いしたのち、浸漬を行わずに直ちに水切りし、温度20℃、湿度40％の恒温恒湿室(日立空調システム製)内で冷風乾燥を行い、水分含量が約11％のノンフライ麺を製造した。この製品について実施例1と同様に評価した。結果を第1表に示す。

【0016】実施例2

強力粉2.8kgとそば粉1.2kgを合わせて100重量部とし、これに食塩1.0重量部、山芋粉2.0重量部および水32重量部を混合し、混ねつたのち、圧延して厚さ1.25mmの麺帯を作成した。この麺帯を、切刃2番角を用いて切断し、生麺線を得た。次いで、これを沸騰湯中で約2分間茹で上げた後、水洗いし、直ちに滅菌水道水に浸漬して増重率480％(対原料粉重量)になるまで保持した。しかる後、茹で麺を水切りし、温度20℃、湿度40％の恒温恒湿室(日立空調システム製)内で冷風乾燥を行い、水分含量が約11％のノンフライ麺を製造した。この製品について、実施例1と同様に評価した。結果を第1表に示す。

【0017】実施例3

中力粉4kgを100重量部とし、これに食塩6重量部および水42重量部を混合し、混ねつた後、圧延して厚さ1.25mmの麺帯を作成した。この麺帯を、切刃10番角を用いて切断し、生麺線を得た。次いで、これを

沸騰湯中で約3分間茹で上げた後、水洗いし、直ちに滅菌水道水に浸漬して増重率51.0%（対原料粉重量）になるまで保持した。しかる後、水切りし、温度20℃、湿度40%の恒温恒湿室（日立空調システム製）内で冷風乾燥を行い、水分含量が約11%のノンフライ麺を製造した。この製品について、実施例1と同様に評価した。結果を第1表に示す。

【0018】実施例4

乾燥麺厚1.2mmのスパゲッティを約4分間茹で上げ*

* した後、直ちに水洗いしてから滅菌水道水に浸漬して増重率46.0%（対原料粉重量）になるまで保持した。しかる後、このスパゲッティを水切りし、温度20℃、湿度40%の恒温恒湿室（日立空調システム製）内で冷風乾燥を行い、水分含量が約11%のノンフライ麺を製造した。この製品について、実施例1と同様に評価した。結果を第1表に示す。

【0019】

【表1】第1表

	湯戻り	食感	麺跡ほぐれ	総合評価
実施例1	◎	◎	◎	◎
比較例1	△	×	○	△
比較例2	△	×	△	△
比較例3	△	△	×	△
実施例2	◎	◎	◎	◎
実施例3	◎	◎	◎	◎
実施例4	◎	◎	◎	◎

【0020】

【発明の効果】本発明によれば、短時間で湯戻りが可能で、麺跡のほぐれが良く、滑らかさを有する生麺に近い食感のノンフライ麺の製造方法が提供される。

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※【図面の簡単な説明】

【図1】 本発明に係る麺線の断面を電子顕微鏡（×40）で観察した結果を示す説明図である。

【図1】

